

Patent Application
ATM-515 (7486)

Section II (Remarks)

Amendments of Claims 13, 18, 19 and 21

Applicants have amended claim 13 to depend from claim 1 to overcome the rejection of claim 13 under 35 USC 112, first paragraph.

In addition, claims 18, 19 and 21 have been amended to change the preamble in each instance from "A process for improving delivery reproducibility of a cyclosiloxane precursor" to "A process for delivery of a cyclosiloxane precursor" and deleting the words "by reducing water content and impurities in the cyclosiloxane precursor" from the preamble of claims 18 and 18, and the words "by reducing water content in the cyclosiloxane precursor" from the preamble of claim 21, to overcome 35 USC 112, second paragraph rejections of these claims.

Rejections of Claims and Traversal Thereof

In the January 19, 2006 Office Action, claims 1, 3-7, 10-19 and 21 were rejected under the provisions of 35 USC 112; including:

a rejection of claims 1, 3-7, 10-19 and 21 under 35 U.S.C. §112, first and second paragraphs;

a rejection of claims 1, 3-7, 10-17 and 21 under 35 U.S.C. §112, first paragraph; and

a rejection of claims 1, 3-7, 10-19 and 21 under 35 U.S.C. §112, second paragraph.

These rejections are hereby traversed, and reconsideration of the patentability of claims 1, 3-7, 10-19 and 21 is requested, in light of the amendments of claims 13, 18, 19 and 21, and the ensuing remarks.

Rejection Under 35 U.S.C. §112, First and Second Paragraphs

In the January 19, 2006 Office Action, the examiner has rejected claims 1, 3-7, 10-19 and 21 under 35 USC 112, first and second paragraphs (page 2 of the Office Action). In the examiner's statement of the basis of this rejection, claims 18 and 19 are the only specifically cited claims.

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Claim 18 has been identified in the statement of rejection as reciting "...wherein said cyclosiloxane precursor comprises < 0.001% of the at least one impurity [sic – the claim actually recites 'impurity']". Claim 19 has been identified as reciting "wherein said purified cyclosiloxane precursor comprises <0.00001% of the at least one impurity...".

The examiner has specified those recitations in claims 18 and 19 and then stated:

"However, the specification at page 8, fourth full paragraph describes that the '...present invention is useful for removing water to levels in the range of from about 1 to 20 ppm and acidic impurities to levels in the range of from about 0.001 to 0.00001%. That is, the claimed < is not positively recited. The above 'from about...' could read on >.'" (page 2, lines 9-13, January 19, 2006 Office Action)

In response, the examiner's attention is directed to the specification at page 12, line 30 to page 13, line 2, where it is stated that:

"The method of the present invention enables impurity levels to be reduced to levels < 0.001% and more preferably to < 0.00001% in the purified TMCTS product."

Since the language cited by the examiner in claims 18 and 19 is fully consistent with and supported by this text of the specification, claims 18 and 19 are fully in compliance with the requirements of the first and second paragraphs of 35 USC 112. It therefore is respectfully requested that the rejection of claims 18 and 19 on such grounds be withdrawn.

In paragraph (b) at page 2, lines 14-15 of the January 19, 2006 Office Action, the examiner has stated that:

"The claimed 'comprising' appears to be at odd [sic – "odds" apparently intended] and/or broadening the terms "consisting of" recited in the specification and original claims."

It is not apparent from such remark whether the examiner is referring to claims 18 and 19, or to all claims 1, 3-7, 10-19 and 21, since no claims are specifically mentioned. A review of the specification and original claims of the application reveals no basis for rejection of any of the claims as currently pending.

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All claims 3-7, 10-19 and 21 depend directly or indirectly from independent claim 1. The original claim 1 is set out below:

1. A process for reducing the concentration of water and optionally at least one impurity, from a cyclosiloxane precursor, wherein said process is selected from the group consisting of:

(1) contacting the cyclosiloxane precursor with an adsorbent bed material, so as to remove therefrom at least a portion of the water, and optionally at least one other impurity, to produce a cyclosiloxane precursor having a reduced level of water and optionally impurity; and removing the purified cyclosiloxane precursor from the adsorbent bed material; and

(2) distilling a starting mixture comprising at least water and at least one $[\text{SiO}]_n$ cyclosiloxane CVD precursor, in the presence of an azeotropic component, so as to form an azeotropic mixture with the water contained in said starting mixture; in order to produce (A) a distillate fraction comprising water and the azeotropic component and (B) a balance fraction comprising a purified cyclosiloxane precursor, whereby said balance fraction (B) is substantially reduced in water relative to said starting mixture; and

(3) a combination of 1 and 2.

A comparison of this originally filed claim 1 with currently pending claim 1 (see Section I of this Response) reveals no inconsistency that would constitute or suggest any violation of the requirements of 35 USC 112, first or second paragraph.¹ A comparison of currently pending claim 1 and the specification likewise reveals no infirmity. Additionally, the dependent claims 3-7, 10-19 and 21 when considered in the context of original claim 1 or current claim 1 or in the context of the specification are free of any deficiencies that would necessitate 35 USC 112 rejection.

In sum, the requirements of written description, enablement and best mode specified in the first paragraph of 35 USC 112 are fully satisfied by claims 1, 3-7, 10-19 and 21, and the requirement of 35 USC 112, second paragraph of "particularly pointing out and distinctively claiming the subject matter which the applicant regards as his invention" (emphasis added) has like likewise been fully satisfied.

Withdrawal of the rejection of claims 1, 3-7, 10-19 and 21 based on "comprising" language therefore is respectfully requested.

¹ It is noted that claim 1 as originally filed contained "consisting" Markush language, in connection with a recital of three different process alternatives (viz., (1), (2) and (1+2)). No such recital is present in currently pending claim 1.

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Rejection Under 35 U.S.C. §112, First Paragraph

In the January 19, 2006 Office Action, the examiner has rejected claims 1, 3-7, 10-19 and 21 under 35 USC 112, first paragraph, as not complying with written description requirements.

Specifically, the examiner has stated in paragraph (a) at page 3, lines 1-7 of the Office Action that:

"The claimed 'wherein said purified cyclosiloxane precursor comprises less than 0.001% of water..' appears to be nowhere from the specification."

In response, the examiner's attention is respectfully directed to the specification at page 14, line 13, which identifies a most preferred water concentration as having an upper limit of "10 ppm." This concentration, 10 ppm, is $10 \text{ parts} \div 1,000,000 \text{ parts}$, or 0.001%. Therefore, a water impurity concentration of less than 0.001% is expressly supported by the specification, and one of ordinary skill in the art reading the specification at page 14, line 13, would readily perceive that 10 ppm is identically equal to 0.001%.

In paragraph (b) at page 3, lines 8-10 of the Office Action, the examiner has stated:

"The claimed '..wherein the water content is less than 20 ppm..' in claim 1. The 'less than 20ppm' can include e.g. only .001 ppm which is not contemplated by the claimed invention."

In response, the examiner's attention is respectfully directed to page 10, lines 28-29 of the specification, wherein purification of the cyclosiloxane material is described involving use of an adsorbent "reducing water levels to <20 ppm." The "<" symbol in such text is a universally understood inequality symbol for "less than" and one of ordinary skill in the art reading such specification text would perceive such water concentration "<20 ppm" as being "less than 20 ppm." The specification therefore is clear, and the claim is fully consistent with and supported by such specification text.

In paragraph (c) at page 3, line 11 of the Office Action, the examiner has stated:

"The combination of adsorbents recited in claim 13."

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Claim 13 as previously on file was fully consistent with claim 10 from which it depended (i.e., "a combination" as recited in claim 13 was fully consistent with the claim 10 recital of "at least one adsorbent bed material" (the latter therefore encompassing one adsorbent bed material as well as more than one adsorbent bed material)), and both claims are fully consistent with the specification text at page 10, lines 11-12:

"The adsorbent bed material used in the purification process of the instant invention may comprise one of many adsorbents and/or drying agents and/or mixtures thereof."

In view of the 35 USC 112, second paragraph rejection of claim 13, however, claim 13 has been amended in this response to depend from claim 1, but this change of dependency does not alter the fact of support of the recited subject matter of such claim by the specification, which lists numerous adsorbent bed materials on page 10 as illustrative species of adsorbent bed materials that may be used alone or in combination, consistent with the disclosure quoted above at page 10, lines 11-12.

Claim 13 therefore is fully consistent with and supported by the specification.

For all the foregoing reasons, claims 1, 3-7, 10-19 and 21 are fully in compliance with the requirements of 35 USC 112, first paragraph, and otherwise in form and condition for allowance.

Rejection Under 35 U.S.C. §112, Second Paragraph

In the January 19, 2006 Office Action, the examiner has rejected claims 1, 3-7, 10-19 and 21 under 35 USC 112, second paragraph, as not particularly pointing out and distinctively claiming the subject matter of the invention.

Specifically, the examiner has stated in paragraph (a) at page 3, lines 18-20 of the Office Action that:

"The combination of adsorbents in claim 13 appears to broaden the non-combination materials included in the Markush grouping of claim 10, the claim from which it depends."

As pointed out in the preceding section addressing §112, first paragraph issues, Claim 13 as previously on file was fully consistent with claim 10 from which it depended - "a combination" was recited in claim 13 and claim 10 recited "at least one adsorbent bed material." Claim 10's recital of "at least one adsorbent

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bed material" contemplated a selection group of species ("silica gel, molecular sieves, ...and metal hydrides") each of which could be employed singly or with other members of the selection group.

Claim 13's recital of a combination of adsorbents therefore specified two or more species of the selection group of claim 10 as being used with one another, as such combination.

Claim 13 previously on file therefore entailed no impermissible broadening of claim 10.

Nonetheless, to advance the application to allowance, and obviate any issues of consistency, claim 13 has been amended in this response, to depend from claim 1.

In paragraph (b) at page 3, line 21 to page 4, line 3 of the Office Action, the examiner has stated that:

"The preambles of claims 18, 19 and 21 all recite 'A process for improving delivery reproducibility of a cyclosiloxane precursor to a chemical vapor deposition reactor by reducing water content in the cyclosiloxane precursor, the process comprising the steps of:' however, the bodies of these do not mention the above "...delivery reproducibilityby reducing water content.."

In response, claims 18, 19 and 21 have been amended to change the preamble in each instance from "A process for improving delivery reproducibility of a cyclosiloxane precursor" to "A process for delivery of a cyclosiloxane precursor" and deleting the words "by reducing water content and impurities in the cyclosiloxane precursor" from the preamble of claims 18 and 19, and the words "by reducing water content in the cyclosiloxane precursor" from the preamble of claim 21, to obviate the issue raised by the examiner.

In paragraph (c) at page 4, lines 4-7 of the Office Action, the examiner has stated that:

"Claims 18-19 and 21 do not substantially differ with one another as required under CFR 1.75(b). The difference seen is in the 'wherein' clause in each claims"

Claim 18 recites "wherein said purified cyclosiloxane precursor comprises < 0.001% of the at least one impurity." Claim 19 recites "wherein said purified cyclosiloxane precursor comprises < 0.00001 % of the at least one impurity." Claim 21 recites "wherein said purified cyclosiloxane precursor comprises less than 0.001% of water."

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In Claims 18 and 19, the specified impurity upper limit values differ by a hundred-fold (0.001% vs. 0.00001%) in relation to one another. Each of claims 18 and 19 recites "the at least one impurity" while claim 21 recites "water." Each of claims 18, 19 and 21 therefore is substantively different in relation to the others.

37 CFR 1.75(b) provides that "[M]ore than one claim may be presented provided they differ substantially from each other and are not unduly multiplied." MPEP §2173.05(n) in such respect states "Undue multiplicity rejections based on 35 U.S.C. §112, second paragraph, should be applied judiciously and should be rare." As noted by the court in *In re Chandler*, 319 F.2d 211, 225, 138 USPQ 138, 148 (CCPA 1963):

"applicants should be allowed reasonable latitude in stating their claims in regard to number and phraseology employed. The right of applicants to freedom of choice in selecting phraseology which truly points out and defines their inventions should not be abridged."

Consistent with the foregoing, claims 18, 19 and 21 are fully in compliance with the requirements of 37 CFR 1.75(b).

Concerning the examiner's statement that "said difference [of impurity values in claims 18, 19 and 21] is not a recitation of any manipulative method steps to which the claims are directed" (page 4, lines 6-7 of the Office Action), it is pointed out that each of the claims 18, 19 and 21 affirmatively recites contacting the cyclosiloxane precursor with the adsorbent bed material "for a sufficient time to reduce ... impurities in the cyclosiloxane precursor" and such contacting is a manipulative method step.

Based on the foregoing reasons, claims 1, 3-7, 10-19 and 21 are fully in compliance with the requirements of 35 USC 112, second paragraph.

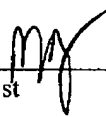
CONCLUSION

All claims 1, 3-7, 10-19 and 21 are now fully in compliance with the requirements of 35 USC 112, and otherwise in form and condition for allowance.

Issue of a Notice of Allowance therefore is respectfully requested.

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Respectfully submitted,



Steven J. Hultquist
Reg. No. 28021
Attorney for Applicants

**INTELLECTUAL PROPERTY/
TECHNOLOGY LAW
P.O. Box 14329
Research Triangle Park, NC 27709
Telephone: (919) 419-9350
Fax: (919) 419-9354
Attorney Ref: 2771-515**

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